

REMARKS

Claims 1-20 are pending. Claims 1-7, 11-14 were rejected. Claims 8-10 were allowed. The Examiner objected to claim 13. Claims 1, 3, 7, 8 and 11 are amended. Claims 15-20 are new dependent claims. No new matter has been introduced. See page 8 of the specification as originally filed.

The Examiner is thanked for allowing claims 8-10 and for indicating that claim 13 was directed to allowable subject matter. Claims 7 and 8 have been amended to correct a typographical error.

The Examiner rejected claim 3 under 35 U.S.C. § 112, second paragraph, as indefinite. Applicants respectfully traverse the Examiner's rejection. After reviewing the specification, one skilled in the art would understand how to control a spindle motor and a positioning motor so that the spindle motor and the positioning motor are switched on and off from the driving circuit in substantially out-of-phase synchronization. Nevertheless, claim 3 has been amended to clarify that the motors "are repeatedly switched on and off from the driving circuit substantially in out-of-phase synchronism." If Applicants have misunderstood the Examiner's concerns with claim 3, Applicants respectfully request the Examiner to contact the undersigned attorney so that appropriate clarifying amendments can be made to claim 3.

The Examiner rejected claims 1-7, 11, 12 and 14 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,679,102 issued to Wevers. Applicants respectfully traverse the Examiner's contention that Wevers is an anticipating reference.

Claim 1 recites "the driving circuit is controlled so as to repeatedly connect and disconnect the first and second motors to the driving circuit in substantially out-of-phase synchronism." Independent claim 11, as amended, similarly recites a controller configured to "extract power from the first motor for operating the second motor by generating control signals to repeatedly connect and disconnect the power rail from the first and second motors substantially in out-of-phase synchronization." The Examiner points to spindle motor 27 as the first motor, stepper motor 30 as the second motor, and microprocessor 40 as the driver circuit, citing Wevers at column 1, lines 65-68, column 2, lines 1-26, and column 3, lines 10-53. The Examiner argues that Wevers teaches the stepper motor 30 being disconnected and the spindle

motor 27 being connected. The cited portions of Wevers discuss disabling the normal stepper motor control circuitry 40, 42, 44 and instead enabling stepper motor retract sequencer 50 and stepper motor power driver 52 in the event of a power failure. During a power outage, the spindle motor 27 is always connected to the “spindle motor back EMF power source” 54, which is used to supply power for the stepper motor retract power driver 52. There is no discussion of repeatedly connecting *and* disconnecting the spindle motor 27 and the stepper motor 30 to the microprocessor 40 (or to spindle motor back EMF power source 54) in a “substantially out-of-phase synchronization” during a power failure. Thus, the cited portions of Wevers do not teach or suggest “repeatedly connecting and disconnecting the first and second motors to the driving circuit in substantially out-of-phase synchronism” as recited in claim 1, or “repeatedly connect and disconnect the power rail from the first and second motors,” as recited in claim 11. Claims 2 and 17 depend from claim 1 and claims 12 and 13 depend from claim 11, and are thus allowable for at least the same reasons as claims 1 and 11, respectively.

Independent claim 3, as amended, recites “wherein the spindle motor and positioning motor are repeatedly switched on and off from the driving circuit substantially in out-of-phase synchronism.” The Examiner points to spindle motor 27 as the first motor, stepper motor 30 as the second motor, and to “spindle motor back EMF power source” 54 as the driver circuit, citing Wevers at column 1, lines 65-68, column 2, lines 1-26, and column 3, lines 10-53. In Wevers, when the spindle motor 27 is driven under normal conditions, it is driven at a constant rotation. See Column 3, lines 29-31. When an alarm signal DC-UNSAFE goes true, “spindle motor back EMF power source” 54 supplies power to the stepper motor 30. There is no suggestion that spindle motor 27 is repeatedly switched on and off when the alarm signal DC-UNSAFE goes true. There is no discussion or suggestion of turning on and off the spindle motor 27 and the stepper motor 30 substantially in out-of-phase synchronization at all. Accordingly, Wevers does not disclose or suggest “the spindle motor and positioning motor are switched on and off from the driving circuit substantially in out-of-phase synchronism” as recited in claim 3. Claims 4-5 and 18 depend from claim 3, and thus are allowable for at least the same reasons as claim 3.

Independent claim 6 recites “chopping connection between the positioning motor and driving circuit at least substantially synchronized out-of-phase with the chopping of the spindle motor connection.” Independent claim 7 as amended recites “chopping connection between the driving circuit and the spindle and positioning motors respectfully in a substantially synchronized out-of-phase manner.” Similarly, independent claim 14 recites “operating the second motor by generating control signals to chop connections between the power rail and the first and second motors substantially in out-of-phase synchronization.” The Examiner equates “chopping connection” to a single disconnection. See paragraph 3 of the Detailed Office Action.

The Examiner’s definition of chopping connection is unreasonable. It is inconsistent with the understanding one of skill in the art would have after reviewing the specification, and makes no sense in the context of the language of claims 6, 7 and 14. Figure 3 of the specification illustrates synchronized “chopping” of the positioning motor and the spindle motor connections. It is clear from Figure 3 that chopping connection is not the same thing as simply disconnecting, as suggested by the Examiner. In addition, if the Examiner’s definition of “chopping” were correct, both motors would remain disconnected from the driving circuit when a loss of power was detected. If both motors were disconnected, “driving of the positioning motor using the recirculation current” would not be enabled. Thus, claims 6, 7 and 14 are not anticipated by Wevers because Wevers does not disclose “chopping” of a connection to the spindle motor substantially synchronized out-of-phase with “chopping” of a connection to the positioning motor. Instead, as discussed above, Wevers simply disables the normal stepper motor control circuitry, 40-44, and leaves the spindle motor 27 connected to the “spindle motor back EMF power source” 54. Claim 19 depends from claim 6, claim 20 depends from claim 7, and claims 15-16 depend from claim 14, respectively, and are thus allowable for at least the same reasons as claims 6, 7 and 14.

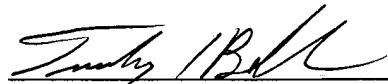
Applicants respectfully submit that claims 1-20 are not anticipated by Wevers for at least the reasons set forth above. Applicants further submit that the amendments to the independent claims are clarifying in nature.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Application No. 09/914,170
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All of the claims remaining in the application are now clearly allowable.
Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
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